



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R2-ES-2022-0162; FF09E21000 FXES1111090FEDR 234]

RIN 1018–BG22

Endangered and Threatened Wildlife and Plants; Endangered Species Status for the Dunes Sagebrush Lizard

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the dunes sagebrush lizard (*Sceloporus arenicolus*), a species found only in southeastern New Mexico and west Texas, as an endangered species under the Endangered Species Act of 1973, as amended (Act). This determination also serves as our 12-month finding on a petition to list the dunes sagebrush lizard. After a review of the best available scientific and commercial information, we find that listing the species is warranted. If we finalize this rule as proposed, it will add this species to the List of Endangered and Threatened Wildlife and extend the Act's protections to the species. We find the designation of critical habitat to be prudent but not determinable at this time.

DATES: We will accept comments received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. eastern time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Public informational meeting and public hearing: We will hold a public informational session from 5 to 6 p.m., mountain standard time, followed by a public hearing from 6 to 8 p.m., mountain standard time, on July 31, 2023.

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<https://www.regulations.gov>. In the Search box, enter FWS-R2-ES-2022-0162, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on “Comment.”

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS-R2-ES-2022-0162, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on <https://www.regulations.gov>. This generally means that we will post any personal information you provide us (see **Information Requested**, below, for more information).

Availability of supporting materials: Supporting materials, such as the species status assessment report, are available at <https://www.regulations.gov> at Docket No. FWS-R2-ES-2022-0162.

Public informational meeting and public hearing: The public informational meeting and the public hearing will be held virtually using the Zoom platform. See *Public Hearing*, below, for more information.

FOR FURTHER INFORMATION CONTACT: Shawn Sartorius, Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, 2105 Osuna NE, Albuquerque, NM 87113; telephone 505–346–2525. Individuals in the United

States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the dunes sagebrush lizard meets the Act's definition of an endangered species; therefore, we are proposing to list it as such. Listing a species as an endangered or threatened species can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process.

What this document does. We propose to list the dunes sagebrush lizard as an endangered species under the Act. As explained in this document, we find that the designation of critical habitat for the dunes sagebrush lizard is not determinable at this time.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that

the dunes sagebrush lizard is endangered due to the following threats: (1) Habitat loss, fragmentation, and degradation from development by the oil and gas and frac sand (high-purity quartz sand that is suspended in fluid and injected into wells to blast and hold open cracks in the shale rock layer during the fracking process) mining industries; and (2) climate change and climate conditions, both resulting in hotter, more arid conditions with an increased frequency and greater intensity of drought throughout the species' geographic range.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary) to designate critical habitat concurrent with listing to the maximum extent prudent and determinable. As explained later in this proposed rule, we find that the designation of critical habitat for the dunes sagebrush lizard is not determinable at this time.

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns and the locations of any additional populations of this species;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status of this species.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, do not provide substantial information necessary to support a determination. Section 4(b)(1)(A) of the Act (16 U.S.C. 1531 et seq.) directs that determinations as to whether any species is an endangered or a threatened species must be made solely on the basis of the best scientific and commercial data available.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via <https://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <https://www.regulations.gov>.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <https://www.regulations.gov>.

Because we will consider all comments and information we receive during the comment period, our final determination may differ from this proposal. Based on the new information we receive (and any comments on that new information), we may conclude that the species is threatened instead of endangered, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species.

Public Hearing

We have scheduled a public informational meeting and public hearing on this proposed rule to list the dunes sagebrush lizard as an endangered species. We will hold the public informational meeting and public hearing on the date and at the times listed above under *Public informational meeting and public hearing* in **DATES**.

We are holding the public informational meeting and public hearing via the Zoom online video platform and via teleconference so that participants can attend remotely. For security purposes, registration is required. To listen and view the meeting and hearing via Zoom, listen to the meeting and hearing by telephone, or provide oral public comments at the public hearing by Zoom or telephone, you must register. For information on how to register, or if you encounter problems joining Zoom the day of the meeting, visit <https://www.fws.gov/office/new-mexico-ecological-services>. Registrants will receive the Zoom link and the telephone number for the public informational meeting and public hearing. If applicable, interested members of the public not familiar with the Zoom platform should view the Zoom video tutorials (<https://support.zoom.us/hc/en-us/articles/206618765-Zoom-video-tutorials>) prior to the public informational meeting and public hearing.

The public hearing will provide interested parties an opportunity to present verbal testimony (formal, oral comments) regarding this proposed rule. The public informational meeting will be an opportunity for dialogue with the Service. The public hearing is a forum for accepting formal verbal testimony. In the event there is a large attendance, the time allotted for oral statements may be limited. Therefore, anyone wishing to make an oral statement at the public hearing for the record is encouraged to provide a prepared written copy of their statement to us through the Federal eRulemaking Portal, or U.S. mail (see **ADDRESSES**, above). There are no limits on the length of written comments submitted to us. Anyone wishing to make an oral statement at the public hearings must register before the hearing (<https://www.fws.gov/about/region/southwest>). The use of a virtual public hearing is consistent with our regulations at 50 CFR 424.16(c)(3).

Previous Federal Actions

On December 30, 1982, we published our candidate notice of review (CNOR) classifying the sand dune lizard (i.e., dunes sagebrush lizard) as a Category 2 candidate species (47 FR 58454). Much of the previous literature concerning *Sceloporus arenicolus* refers to it by the common name of sand dune lizard (e.g., Degenhardt et al. 1996, p. 159); however, the currently accepted common name is dunes sagebrush lizard (Crother 2017, p. 52). Category 2 status included those taxa for which information in the Service's possession indicated that a proposed rule was possibly appropriate, but for which sufficient data on biological vulnerability and threats were not available to support a proposed rule.

On September 18, 1985, we published our CNOR reclassifying the dunes sagebrush lizard as a Category 3C candidate species (50 FR 37958). Category 3C status included taxa that were considered more abundant or widespread than previously thought or not subject to identifiable threats. Species in this category were not included in our subsequent notices of review, unless their status had changed. Therefore, in our

subsequent November 21, 1991, CNOR (56 FR 58804), the dunes sagebrush lizard was not listed as a candidate species.

On November 15, 1994, our CNOR once again included the dune sagebrush lizard as a Category 2 candidate species (59 FR 58982), indicating that its conservation status had changed. On February 28, 1996, we published a CNOR that announced changes to the way we identify candidates for listing under the Act (61 FR 7596). In that document, we provided notice of our intent to discontinue maintaining a list of Category 2 species, and we dropped all former Category 2 species from the candidate list. This was done to reduce confusion about the conservation status of those species, and to clarify that we no longer regarded them as candidate species. As a result, the dunes sagebrush lizard did not appear as a candidate in our 1996 (61 FR 7596; February 28, 1996), 1997 (62 FR 49398; September 19, 1997), or 1999 (64 FR 57534; October 25, 1999) CNOR.

In our 2001 CNOR, the dunes sagebrush lizard was placed on our candidate list with listing priority number (LPN) of 2 (66 FR 54808; October 30, 2001). Service policy (48 FR 43098; September 21, 1983) requires the assignment of an LPN to all candidate species that are warranted for listing. This listing priority system was developed to ensure that the Service has a rational system for allocating limited resources in a way that ensures that the species in greatest need of protection are the first to receive such protection. The LPN is based on the magnitude and immediacy of threats and the species' taxonomic uniqueness with a value range from 1 to 12. A listing priority number of 2 for the dunes sagebrush lizard means that the magnitude and the immediacy of the threats to the species were considered high.

On June 6, 2002, we received a petition from the Center for Biological Diversity to list the dunes sagebrush lizard. On June 21, 2004, the United States District Court for the District of Oregon (*Center for Biological Diversity v. Norton*, Civ. No. 03-1111-AA) found that our resubmitted petition findings for three species, including the dunes

sagebrush lizard, which we published as part of the CNOR on May 4, 2004 (69 FR 24876), were not sufficient to satisfy the petition process. The court indicated that we did not specify what listing actions for higher priority species precluded publishing a proposed rule for these three species, and that we did not adequately explain the reasons why actions for the identified species were deemed higher in priority, or why such actions resulted in the preclusion of listing actions for these three species. The court ordered that we publish updated findings for these species within 180 days of the order.

On December 27, 2004, we published a 12-month finding that listing of the dunes sagebrush lizard was warranted, but precluded by higher priorities (69 FR 77167). In that finding, the species remained on the candidate list, with an LPN of 2. On December 14, 2010, we proposed to list the dunes sagebrush lizard as endangered (75 FR 77801). Following two public comment periods (see 75 FR 77801, December 14, 2010, and 76 FR 19304, April 7, 2011), we announced a 6-month extension on the final determination for the proposed listing of the dunes sagebrush lizard and reopened the comment period on the proposed rule to list the species (76 FR 75858; December 5, 2011). We took this action because there was substantial disagreement regarding the sufficiency or accuracy of the available data relevant to the proposed listing rule. On February 24, 2012, we again reopened the comment period on the proposed listing (77 FR 11061). The February 24, 2012, publication also announced the availability of, and requested comments on the likelihood of implementation and effectiveness of the conservation measures in, a signed conservation agreement for the dunes sagebrush lizard in Texas. Following these comment periods, on June 19, 2012, we published a document (77 FR 36871) withdrawing the proposed rule to list the dunes sagebrush lizard as endangered based on our conclusion that the threats to the species identified in the proposed rule were no longer as significant as believed at the time of the proposed rule. We based this

conclusion on our analysis of current and future threats as well as an analysis of the potential benefits of conservation efforts in New Mexico and Texas.

On June 1, 2018, we received a petition from the Center for Biological Diversity and Defenders of Wildlife, requesting that the dunes sagebrush lizard be listed as endangered or threatened and critical habitat be designated for this species under the Act. On July 16, 2020, we published a 90-day finding determining that the petition presented substantial scientific or commercial information indicating that listing the species may be warranted (85 FR 43203). On May 19, 2022, we received a complaint from the Center for Biological Diversity alleging that we failed to issue a timely 12-month finding. In order to settle the complaint, we agreed to publish a 12-month finding by June 29, 2023. This document serves as the 12-month finding for the 2018 petition.

Peer Review

A species status assessment (SSA) team prepared a SSA report for the dunes sagebrush lizard. The SSA team was composed of Service biologists, in consultation with other species experts from State wildlife agencies, consulting firms, and academia. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species.

In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we solicited independent scientific review of the information contained in the dunes sagebrush lizard SSA report. We sent the SSA report to seven independent peer reviewers and received five responses. Results of this structured peer review process can be found at <https://www.regulations.gov> under Docket No. FWS-R2-ES-2022-0162. In preparing this proposed rule, we incorporated the results of these reviews, as appropriate, into the

SSA report, which is the foundation for this proposed rule.

Summary of Peer Review Comments

As discussed above in **Peer Review**, we received comments from five peer reviewers on the draft SSA report. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the information contained in the SSA report. The peer reviewers generally concurred with our methods and conclusions presented within the draft SSA report. They provided some additional information, clarifications in terminology, further discussions and interpretations of the available scientific literature, and feedback on stressors. We incorporated the majority of the substantive comments within the SSA report (USFWS 2023, version 1.2), and thus this proposed rule. We outlined the substantive comments that we did not incorporate, or fully incorporate, within the SSA report below.

(1) Comment: We received several comments from a reviewer on the use of shinnery oak (*Quercus havardii*) shrublands, which are areas of flat terrain interspersed among shinnery oak sand dune formations, by the dunes sagebrush lizard. The reviewer believed our assertion in the SSA report that dunes sagebrush lizards use shinnery oak shrublands for dispersal was incorrect. Instead, the reviewer believed that the dunes sagebrush lizard does not use shinnery oak shrublands for dispersal and only perform long-distance movements through shinnery oak dune formations.

Our response: We revised the wording of the SSA report to reflect the importance of the sand dune formations, particularly sand dune blowouts, to all aspects of dunes sagebrush lizard life history. However, there are records of dunes sagebrush lizards collected in shinnery oak shrublands, which we clarified in the SSA report. In response to this comment, we emphasized that the importance of the shinnery oak shrublands to the dunes sagebrush lizard is largely due to it providing a stabilizing force that maintains the structure of the sand dune formations.

(2) *Comment:* A reviewer commented that the SSA report presented an inaccurate impression on the extent of gene flow between the areas designated as analysis units for the SSA. The reviewer stated that there was no evidence of gene flow between these areas and they should be treated as independent units that do not exchange individuals.

Our response: For the SSA, we subdivided the dunes sagebrush lizard's range into analysis units to base our assessment of resiliency. These units were delineated based on genetic, demographic, and habitat data that indicated breakpoints where dunes sagebrush lizard movement was restricted on the landscape. We agree that contemporary gene flow and movement of individual dunes sagebrush lizards is limited to nonexistent between the areas we designated as analysis units. We revised our wording in the SSA report to reflect that dispersal events between these areas are infrequent and unlikely to contribute to the demographic or genetic resiliency of a population. These analysis units are based largely on the results of Chan et al. (2020, entire), who identified distinct genetic groupings across the dunes sagebrush lizard's range. However, Chan et al. (2020, p. 7) also found evidence of genetic intermixing between several of these groups, although admixed individuals composed a small portion of the samples that were typically restricted to contact zones between the distinct genetic groups. For this reason, we cannot unequivocally claim that dispersal and gene flow between our analysis units is nonexistent.

(3) *Comment:* A reviewer disagreed with our characterization of the shinnery oak duneland ecosystem as a dynamic environment in which sand dune formations shift over time. They stated that sand dunes were stable over decades and any appreciable shifts occur over the scale of centuries and millennia, which contrasted with our depiction of these ecosystems as dynamic with suitable habitat shifting regularly over time and space. The reviewer noted that several locations where dunes sagebrush lizards have been studied for over 30 years have remained stable over that time.

Our response: In reviewing the literature and personal accounts of experts, there is substantial evidence that sand dune fields in this area have shifted spatially since they were first described. However, we acknowledge that does not mean all sand dunes shift on similar spatial or temporal scales. In revising the SSA report, we referenced the results of Dzialak et al. (2013, entire), who documented shifts in the geographic extent of the Mescalero and Monahans Sandhills over 25 years using satellite and aerial imagery. They found that over that period some areas remained stable but loss and emergence of shinnery oak soil-associations were also common (Dzialak et al. 2013, p. 1381). Overall, the Mescalero and Monahans Sandhills experienced a net decline in geographic extent of 10.3 percent over the study period. Several areas within the range of the dunes sagebrush lizard, most notably in the northern extent of the range in the Mescalero Sandhills, were estimated to have had an elevated probability of loss in shinnery oak soil-associations (Dzialak et al. 2013, p. 1382). Therefore, we maintain our characterization of this landscape as one that is spatially dynamic, but we also revised our wording to clarify that some areas may remain stable over longer timeframes.

(4) Comment: A reviewer commented that trends in the frac sand mining industry are dependent on market demands and noted the inherent challenge in projecting mine expansion over time. The reviewer noted that since the industry is relatively new in this area (the first sand mine was established in 2017), growth rates may be biased by rapid expansion as mines were first established and before the market corrected to a more stable trend. The reviewer also suggested that the industry may shift to locally derived frac sand as the oil industry considers alternative methods of development.

Our response: We acknowledge that it is difficult to make projections for such a young industry for which there is little available information on the patterns and practices of sand mines collectively. However, our projections of future sand mine expansion were based on observed growth of known sand mines using aerial imagery (USFWS 2023, pp.

108–109, 112–114). We used imagery that covered a 4-year period, which included the initial startup phase of mine establishment as well as ebbs in the market, during the COVID pandemic. We observed minimal growth at several mines after their initial establishment, whereas others expanded eightfold from 2018 to 2022 (USFWS 2023, p. 109). By developing two scenarios that represent plausible upper and lower limits of sand mine growth, we capture inherent uncertainty in the future development of the industry. Thus, we are confident that our future scenarios incorporate plausible growth rates for sand mines based upon the best available data. We also note that our projected annual growth rates are within the range estimated in independent assessments by industry experts (USFWS 2023, pp. 195–196).

I. Proposed Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of the dunes sagebrush lizard is presented in the SSA report (version 1.2; USFWS 2023, pp. 16–42).

The dunes sagebrush lizard is a species of spiny lizard endemic to the shinnery oak dunelands and shrublands of the Mescalero and Monahans Sandhills in southeastern New Mexico and western Texas. Most dunes sagebrush lizard adults live for 2 to 4 years and reproduce in the spring and summer (Degenhardt and Jones 1972, p. 216; Cole 1975, p. 292; Snell et al. 1997, p. 9; Fitzgerald and Painter 2009, p. 200; Hibbitts and Hibbitts 2015, p. 156). Males are territorial and compete to attract and mate with females (Fitzgerald and Painter 2009, p. 200). Females establish nests underground in shinnery oak duneland vegetation, where they lay an average of five eggs per clutch and lay either one or two clutches in a year (Hibbitts and Hibbitts 2015, p. 156, Hill and Fitzgerald 2007, p. 30; Ryberg et al. 2012, p. 583). Hatchlings emerge approximately 30 days after eggs are laid (Ryberg et al. 2012, p. 583; Fitzgerald and Painter 2009, p. 200). Eggs and young dunes sagebrush lizards are susceptible to natural mortality from environmental

stress and predation.

This species is a habitat specialist that depends on shinnery oak duneland habitat to provide appropriate substrate for nests, cover for young, and food resources as juvenile lizards mature into adults (Fitzgerald et al. 1997, p. 4; Hibbitts et al. 2013, p. 104; Hardy et al. 2018, p. 10). The Mescalero and Monahans Sandhills ecosystems are composed of ancient sand dune fields formed and maintained by wind, shifting sand, and partially stabilized by shinnery oak (Ryberg et al. 2015, pp. 888, 893; Walkup et al. 2017, p. 2). These ecosystems are characterized by a patchy arrangement of narrow, almost linear sand dunes embedded in a matrix of shinnery oak shrubland flats (Fitzgerald and Painter 2009, p. 199; Ryberg et al. 2015, p. 890). Within the sand dunes themselves, dunes sagebrush lizards rely on open dune blowouts, which typically form on the leeward side of established vegetation (Walkup et al. 2021, pp. 13–14). Dune blowouts are bowl-shaped depressions in the sand dunes that form when disturbance removes stabilizing vegetation.

The landscape created by the shinnery oak duneland ecosystem is a spatially dynamic system in which the location and presence of sand dunes is not static and shifts over time (Dzialak et al. 2013, entire). Spatial variation within habitat patches can drive regional population dynamics by shaping movement, behavior, and habitat selection (Ryberg et al. 2015, p. 888). Dunes sagebrush lizards form small, localized populations called neighborhoods that are interconnected through dispersal (Ryberg et al. 2013, entire). Long-term population stability is maintained through interconnected neighborhoods experiencing localized colonization and extirpation (Fitzgerald et al. 1997, p. 28; Fitzgerald et al. 2005, p. 1).

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (84 FR 45020; August 27, 2019). On the same day, the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service's general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (84 FR 44753; August 27, 2019).

The Act defines an "endangered species" as a species that is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an “endangered species” or a “threatened species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as we can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species’ likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species’ biological response include species-specific factors, such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent our decision on whether the species should be proposed for listing as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess the viability of the dunes sagebrush lizard, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer

and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy is the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation is the ability of the species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified the species’ ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species’ viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species’ life-history needs. The next stage involved an assessment of the historical and current condition of the species’ demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species’ responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS-R2-ES-2022-0162 on <https://www.regulations.gov>.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the dunes sagebrush lizard and its resources, and the threats that influence the species’ current and future condition, to assess the species’ overall viability and the risks to that viability.

Species Viability

The key requirement for long-term viability of the dunes sagebrush lizard is large, intact, shinnery oak duneland ecosystems that facilitate completion of their life history and maintain healthy populations (Texas A&M University [TAMU] 2016, p. 3). Shinnery oak duneland habitat provides the primary features necessary to support neighborhoods of dunes sagebrush lizard, particularly sand dune blowouts that are essential for reproduction and other aspects of the species' life history (Fitzgerald et al. 1997, p. 4; Hibbitts et al. 2013, p. 104; Hardy et al. 2018, p. 10; Walkup et al. 2021, pp. 13–14). The shinnery oak duneland and shrubland habitat that surrounds these blowouts is important to facilitate dispersal and maintain the structure of the sand dune formations (Machenberg 1984, p. 23; Kocurek and Havholm 1993, pp. 401–402; Gucker 2006, p. 14; Dhillion and Mills 2009, p. 264).

Since the Mescalero and Monahans Sandhills are dynamic ecosystems, habitat patches for dunes sagebrush lizard can shift over time (Fitzgerald et al. 1997, p. 28; Dzialak et al. 2013, pp. 1371–1372, 1379–1383; Hardy et al. 2018, p. 27). Long-term resiliency of the dunes sagebrush lizard is maintained through interconnected neighborhoods experiencing localized colonization and extirpation (Ryberg et al. 2013, p. 1). A dunes sagebrush lizard population, even within a contiguous patch of habitat, is itself composed of aggregations of localized neighborhoods that interact with each other. That means dunes sagebrush lizards may not occur in all areas of suitable habitat due to natural extinction-colonization dynamics (Fitzgerald et al. 1997, p. 28; Painter et al. 1999, p. 51; Fitzgerald et al. 2005, p. 1), and the current state of occupancy may not necessarily reflect the future state at a site (Walkup et al. 2018, p. 503). Thus, it is important to include the consideration of currently unoccupied but potentially suitable habitat patches within the species' range, especially since dispersal rates and their mechanisms are not well understood (Painter et al. 1999, p. 36; Hardy et al. 2018, p. 20).

Scaling up to the species' range, the dunes sagebrush lizard is subdivided into three primary evolutionary lineages that are spatially discrete and have evolved in isolation since their initial founding (Chan et al. 2009, p. 136; Chan et al. 2020, pp. 6–7). Two are found in Mescalero Sandhills, with one occurring in the northern portion of the sandhills (Northern Mescalero) and the second in the southern portion (Southern Mescalero). The third is exclusive to the Monahans Sandhills of west Texas. Despite a narrow contact zone between the Northern and Southern Mescalero lineages (Chan et al. 2020, p. 7), there is no evidence of intermixing or gene flow between these lineages. These three lineages cover different portions of the species' range and, therefore, are subject to different environmental conditions. For example, a latitudinal gradient in precipitation and temperature exists from north to south within the Mescalero and Monahans Sandhills. In general, moving 1° latitude from north to south across the dunes sagebrush lizard's range results in a mean annual maximum temperature increase of 1.1 degrees Celsius (°C) (2 degrees Fahrenheit (°F)) and a total annual precipitation decrease of 5 centimeters (cm) (2 inches (in)) (Leavitt 2019, pp. 7–8; USFWS 2023, pp. 45–47). Potential evapotranspiration also increases from north to south (Holliday 2001, p. 101). The combination of isolation and environmental variation has likely facilitated adaptive differences between these lineages.

These lineages are further subdivided into at least 10 different genetic groups, delineated primarily by mitochondrial DNA haplotypes and corroborated by nuclear microsatellite data (Chan et al. 2014, p. 9; Chan et al. 2020, entire). These groups correspond to notable breaks and pinch points in the dune formations and reflect historical differentiation based on limited connectivity between contiguous habitat patches (Chan et al. 2020, p. 2). Within these groups there appears to be varying levels of connectivity and gene flow, with evidence of isolation by distance and resistance in several areas in New Mexico (Chan et al. 2014, pp. 33–41; Chan et al. 2017, pp. 9–22).

Despite evidence of some gene flow between these groups based on nuclear microsatellite data (Chan et al. 2020, p. 7), they appear to function as independent units with intermixing restricted to narrow contact zones. Thus, there is limited potential for natural recolonization should one or more of these groups become extirpated.

Threats

We identified risk factors that have influenced the dunes sagebrush lizard and its habitats in the past and may continue to do so into the future. These included habitat destruction, modification, and fragmentation (Factor A), predation (Factor C), human-caused mortality (Factor E), invasive species (Factors A and E), pollution (Factors A and E), groundwater depletion (Factor A), and extreme weather and climate change (Factors A and E) (USFWS 2023, pp. 53–85). However, in this proposed rule, we will discuss only those factors in detail that could meaningfully impact the status of the species. Risk factors such as predation, pollution, invasive species, groundwater depletion, and human-caused mortality have more localized effects on the dunes sagebrush lizard but on their own are unlikely to significantly affect overall species viability. The primary risk factors affecting the current and future status of the dunes sagebrush lizard are habitat destruction, modification, and fragmentation associated with oil and natural gas production and frac sand mining. Climate change is also likely to lead to more extreme weather events, particularly drought, that will further impact the dunes sagebrush lizard and its habitat. For a detailed description of the threats analysis, please refer to the SSA report (USFWS 2023, pp. 53–85).

Habitat Destruction, Modification, and Fragmentation

Due to its reliance on a very specific and restricted habitat type, the dunes sagebrush lizard is highly susceptible to habitat loss and fragmentation (Walkup et al. 2017, p. 2). At the individual level, the removal of shinnery oak vegetation and destruction of sand dunes has multiple negative effects on the dunes sagebrush lizard.

The species is dependent on this habitat type for all aspects of its life history, including breeding, feeding, and sheltering (Young et al. 2018, p. 906). Shinnery oak vegetation provides sheltering habitat for thermoregulation and refuge from potential predators (Machenberg 1984, pp. 16, 20–21; Degenhardt et al. 1996, p. 160; Snell et al. 1997, pp. 1–2, 6–11; Fitzgerald et al. 1997, p. 26; Peterson and Boyd 1998, p. 21; Painter et al. 1999, pp. 1, 27; Sartorius et al. 2002, pp. 1972–1975; Painter 2004, pp. 3–4; Dhillion and Mills 2009, p. 264; Leavitt and Acre 2014, p. 700; Hibbitts and Hibbitts 2015, p. 157). It also provides habitat for the prey (e.g., insects and other terrestrial invertebrates) consumed by the dunes sagebrush lizard (Degenhardt et al. 1996, p. 160; Degenhardt and Jones 1972, p. 217; Fitzgerald and Painter 2009, p. 199; Leavitt and Acre 2014, p. 700). Dunes sagebrush lizards move exclusively through shinnery oak vegetation to disperse between the sand dune blowouts that support nesting and reproduction (Fitzgerald et al. 1997, p. 24). Since the dunes sagebrush lizard breeds exclusively in sand dune blowouts, loss of sand dunes eliminates breeding habitat for the species.

At the population level, habitat destruction and fragmentation can affect the dunes sagebrush lizard's viability in multiple ways. Loss of habitat can lead to the reduction or even loss of populations and those populations that do remain are likely smaller and more isolated, elevating their vulnerability to stochastic events (Henle 2004, p. 239; Devictor et al. 2008, p. 511; Hibbitts et al. 2013, p. 111; Leavitt and Fitzgerald 2013, p. 6; Walkup et al. 2017, p. 2). Fragmentation may also result in degradation of dune-blowout landforms beyond the immediate footprint of developed areas (Leavitt and Fitzgerald 2013, p. 9; Walkup et al. 2017, p. 11). Fragmented sites are often of lower quality, possessing fewer, more dispersed large dune blowouts as well as more large patches of flat open sand and barren ground (Leavitt and Fitzgerald 2013, pp. 9–10), which are less likely to support robust populations.

As populations and habitat patches disappear across the landscape, there are fewer “stepping-stones” to connect remaining populations through dispersal and colonization (Young et al. 2018, p. 910). Dunes sagebrush lizards are not known to disperse across large expanses of unsuitable habitat. Thus, a given population may have little chance of receiving immigrating individuals across areas where suitable habitat has been removed (Fitzgerald et al. 1997, p. 27). Movements of individual dunes sagebrush lizards between populations are hindered or precluded by fragmentation and do not occur at rates sufficient to sustain demographics necessary to prevent localized extirpations (Leavitt and Fitzgerald 2013, p. 11; Ryberg et al. 2013, p. 4; Walkup et al. 2017, p. 12; Young et al. 2018, p. 910). Over time, fragmentation isolates populations and results in a progressive decline in population abundance until, ultimately, the species becomes extirpated (Leavitt and Fitzgerald 2013, p. 12). Loss of habitat may be irreversible: once shinnery oak dunelands are disturbed, these landforms tend to shift to alternative stable states that are not prone to self-regeneration through ecological succession (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34).

Oil and natural gas production—The dunes sagebrush lizard’s range overlaps with the Permian Basin, a geologic province that hosts multiple basins each with multiple stratigraphic units from which hydrocarbons, water, or minerals are extracted. Oil and gas development involves activities, such as surface exploration, exploratory drilling, oil field development, and facility construction, including access roads, well pads, and operation and maintenance. These activities can all result in direct habitat loss by disturbance and removal of shinnery oak duneland. Indirect habitat loss occurs from fragmentation of larger habitat into smaller parcels of suitable habitat. As habitat becomes fragmented, the overall stability of the shinnery oak sand dune formations decreases, promoting wind erosion and deflation of the dunes (Carrick and Kruger 2007, pp. 771–772; Breckle et al. 2008, pp. 442, 453–454; Mossa and James 2013, pp. 75, 88, 92; Engel et al. 2018, pp. 1–

13; Forstner et al. 2018, pp. 3–21). Fragmentation can also result in edge effects in which the habitat directly adjacent to the converted areas is of lower quality. For example, habitat fragmentation can increase air temperatures and solar radiation, along with reducing the availability of microhabitats that can serve as thermal refugia for the dunes sagebrush lizard (Jacobson 2016, pp. 3–4, 10).

Several studies have demonstrated a negative relationship between oil well pad density and the number of dunes sagebrush lizards present at a site (Sias and Snell 1998, p. 1; Leavitt and Fitzgerald 2013, p. 9; Ryberg et al. 2015, p. 893; Johnson et al. 2016, p. 41; Walkup et al. 2017, p. 9). A regression analysis that predicted a 25 percent reduction in the abundance of dunes sagebrush lizards at well densities of 13.64 wells pads per square mile (wells/mi²), and a 50 percent reduction at a well density of 29.82 well pads/mi² (Sias and Snell 1998, p. 23). Based on that study, the proposed recommendation became that well densities in New Mexico be limited to 13 well pads/mi² (Painter et al. 1999, p. 3). Further research found that areas with 13 well pads/mi² or greater are found to have considerably lower abundance of dunes sagebrush lizards than unfragmented sites (Leavitt and Fitzgerald 2013, p. 9). Further, high well and road density at the landscape scale result in smaller, fewer, and more dispersed sand dune blowouts that are less suited to dunes sagebrush lizard persistence (Leavitt and Fitzgerald 2013, p. 9). Marked declines in dunes sagebrush lizard occurrence in New Mexico have also been observed at well densities of 5 and 8 well pads/mi², with no lizards found at well densities above 23 well pads/mi² (Johnson et al. 2016, p. 41). These results supported the recommendation that 13 well pads/mi² should be considered “degraded” habitat as a standard in the scientific literature. This effect extends to population persistence, as research has found that dunes sagebrush lizard populations have a relatively high susceptibility to local extinction in landscapes with 13 or more well pads/mi² (Walkup et al. 2017, p. 10). The network-like development of well pads and their connecting roads both isolate populations and disrupt

the underlying geomorphologic processes required to maintain the shinnery oak dune formations.

In many areas of oil and gas development, caliche roads are constructed in a grid-like network (Young et al. 2018, p. 6). Roads fragment habitat and impede dunes sagebrush lizard movement, reducing access to habitat, mating opportunities, and prey, and decreasing population size and the likelihood of population persistence. Both field experiments and radio tracking studies have revealed that dunes sagebrush lizards will avoid crossing caliche roads (Hibbitts et al. 2017, p. 197; Young et al. 2018, p. 910). Roads may also create fugitive dust that can impact shinnery oak growth and alter the grain-size distribution in blowouts. The dunes sagebrush lizard appears to be more abundant in areas where sand particles are larger (Fitzgerald et al. 1997, p. 25; Snell et al. 1997, p. 9). Soils with fine-grained particles (less than 250 micrometers (μm)) may interfere with breathing physically (e.g., inhaling sand) and prevent gas exchange necessary for lizards to breathe while buried (Fitzgerald et al. 1997, p. 25; Snell et al. 1997, p. 9; Ryberg and Fitzgerald 2015, p. 118). Fine-grained sand may also be too compact for the dunes sagebrush lizard to bury itself, may be inadequate for nest excavation and egg incubation (Ryberg et al. 2012, p. 584), and may have properties that prevent adequate exchange of gasses and water between eggs and the substrate surrounding subterranean nest chambers (Snell et al. 1997, p. 9). Thus, covering blowouts in dust may make an area unsuitable habitat for the dunes sagebrush lizard.

Frac sand mining—Frac sand is a naturally occurring sand used as a proppant (i.e., a solid material used to keep fissures beneath the Earth's surface open) during hydraulic fracturing of oil and gas wells to maximize production of unconventional reservoirs (Mossa and James 2013, pp. 76–79; Benson and Wilson 2015, pp. 1–50; Engel et al. 2018, pp. 1–13; Forstner 2018, pp. 1–19; Mace 2019, entire). Sand mining involves the use of heavy equipment and open-pit methods to mechanically remove vegetation and

fine sediments from near-surface deposits of sand (e.g., sand dunes and sand sheets) (Breckle et al. 2008, pp. 453–454; Benson and Wilson 2015, pp. 7–8, 49; Mossa and James 2013, pp. 76–80; Forstner et al. 2018, pp. 2–17; Mace 2019, pp. 42–61).

Construction of sand mine facilities, which include processing plants and related infrastructure, in dunes sagebrush lizard habitat removes shinnery oak and grades and compacts shinnery oak dunelands. The sand mine facilities replace the shinnery oak dunelands with paved surfaces, buildings, open pit mines, spoil areas, processing pools, and other structures (Boyd and Bidwell 2002, p. 332; Ryberg et al. 2015, pp. 888–890, 895–896; Forstner et al. 2018, pp. 1–5). Sand mining operations in dunes sagebrush lizard habitat can remove entire shinnery oak duneland landforms, or portions thereof; alter dune topography; and produce large, deep, unnatural pits in the land surface (Breckle et al. 2008, pp. 453–454; Mossa and James 2013, pp. 77–79, 85; Engel et al. 2018, pp. 1–13; Pye 2009, pp. 361–362; Forstner et al. 2018, pp. 2–21). The effects of sand mining can extend beyond the footprint of the actual mine itself. Removal of a portion (or portions) of a sand dune promotes the loss and degradation of the entire landform (i.e., the remaining unmined segments) by undermining its stability and promoting wind erosion and deflation (Carrick and Kruger 2007, pp. 771–772; Breckle et al. 2008, pp. 442, 453–454; Mossa and James 2013, pp. 75, 88, 92; Engel et al. 2018, pp. 1–13; Forstner et al. 2018, pp. 3–21).

Frac sand mining is a recent occurrence in this region: the first sand mine was developed in early 2017, and by the end of 2018, 17 facilities had registered with the Texas Commission on Environmental Quality for operations in the region (Mace 2019, pp. 1, 42–43, 78). Sand mines have only been developed in the Texas portion of the dunes sagebrush lizard's range, specifically the Monahans Sandhills. Currently, most mines are in Winkler and Ward Counties; these two counties contain 11 and 2, respectively, of the 17 existing facilities (Mace 2019, pp. 43–44, 56; USFWS 2023, pp.

108–109). Sand mining is expected to continue in these counties given the current location and density of mines in the counties, the average rates of surface mining, and the anticipated plans and growth of the oil and gas industry in the area (Mace 2019, pp. 42–54; Benson and Wilson 2015, pp. 1–8, 54–57; Latham and Watkins 2020, pp. 12–13).

Extreme Weather and Climate Change

The dunes sagebrush lizard occurs in a semiarid climate that experiences extreme heat and droughts, but the species is adapted to contend with such environmental variability. In the 1920s and 1930s, northern shinnery oak ecosystems averaged 1 to 2 years of drought every 10 years, and southern portions of those ecosystems averaged 2 to 3 years of drought every 10 years (Peterson and Boyd 1998, p. 14). In the past 20 years, moderate to exceptional drought has occurred every 1 to 2 years, in the southern and northern shinnery oak ecosystems (U.S. Drought Monitor 2022, unpaginated). Climate change is likely to increase the frequency and severity of drought in this region since, on average, surface air temperatures across Texas are predicted to increase by 3 °C (5.4 °F) by 2099 (Jiang and Yang 2012, p. 238). In the southwest United States, temperature increases are predicted to be concentrated in the summer months, and in Texas, the number of days exceeding 35 °C (95 °F) may double by 2050 (Kinniburgh et al. 2015, p. 8). According to climate change predictions, west Texas will experience greater variability in seasonal precipitation patterns with the greatest net loss experienced in winter (Jiang and Yang 2012, p. 238).

The impacts of extreme heat and drought on individual dunes sagebrush lizards is relatively unknown. Drought could impact food resources, which would then impact lizard productivity. The marbled whiptail (*Aspidoscelis marmoratus*), another lizard species found in the Monahans Sandhills, showed a decline in density during a period of drought (Fitzgerald et al. 2011, p. 30). If drought restricts available food resources, it could negatively affect dunes sagebrush lizard recruitment and survival.

The relationship between these weather events and dunes sagebrush lizard habitat (i.e., shinnery oak) has been better characterized. While shinnery oak is highly adapted for arid conditions, prolonged periods of drought inhibit growth and reproduction. For example, during drought, shinnery oak can lose its leaves or not even leaf-out (Peterson and Boyd 1998, p. 9). Additionally, recent droughts have delayed typical spring leaf-out for shinnery oak, with leaf-out instead occurring with the seasonal summer monsoons (Johnson et al. 2016, p. 78). The timing of the spring leaf-out is important, as it provides shelter for adult dunes sagebrush lizards as they become active in the spring and provides food resources for invertebrates that are consumed by dunes sagebrush lizard. Furthermore, continued alterations to the landscape are likely to exacerbate the impacts of climate change on dunes sagebrush lizard. For example, habitat fragmentation can already increase air temperatures and solar radiation, along with reducing the availability of microhabitats that can serve as a thermal refugia (Jacobson 2016, pp. 3–4, 10). Habitat fragmentation also restricts natural patterns of dispersal and colonization that could buffer against extreme weather impacts.

Current Condition

We assessed the current condition of the dunes sagebrush lizard using a geospatial analysis to estimate the current quantity and quality of available habitat (USFWS 2023, pp. 86–109). Our approach was rooted in the findings by numerous studies that the dunes sagebrush lizard experiences reductions in abundance and density as habitat is lost or becomes disturbed (Leavitt and Fitzgerald 2013, p. 11; Ryberg et al. 2013, p. 4; Walkup et al. 2017, p. 12; Young et al. 2018, p. 910). The results of our geospatial analysis indicate that across our analysis area there is approximately 210,506 hectares (ha) (520,161 acres (ac)) classified as shinnery oak duneland, which is the primary habitat type required by the species for breeding, feeding, and sheltering. Of this shinnery oak duneland habitat, about 50 percent is minimally disturbed by human development,

whereas 35 percent has been degraded to the point it is likely unable to support populations of dunes sagebrush lizard. The remaining 15 percent has moderate levels of disturbance, where we project there have been reductions in dunes sagebrush lizard viability.

Since the dunes sagebrush lizard exhibits divisions between population areas and restricted gene flow across its range (Chan et al. 2020, entire), we identified 11 analysis units to assess resiliency. These units correspond to sections of the overall range of the dunes sagebrush lizard that are demographically and genetically independent from each other and logical breakpoints for analysis based on habitat distribution and potential barriers to movement (i.e., highways). Levels of habitat degradation and disturbance were not equal across the 11 analysis units; therefore, we developed a system to rank the viability of dunes sagebrush lizard populations within these units based on habitat metrics. Each analysis unit was classified as either being in high, moderate, or low condition. Those in high condition possess enough undisturbed habitat that we project they will support robust, interconnected populations of the dunes sagebrush lizard. Moderate condition defines units that have experienced habitat loss and disturbance to such an extent that abundance and the potential for natural patterns of dispersal and colonization are expected to be reduced. Units in low condition have experienced such extensive habitat loss that they are expected to experience substantial population losses (USFWS 2023, pp. 92–94).

Of the 11 analysis units, we found two have an overall condition score of high, five that are moderate condition, and four that are low condition (Table 1). All analysis units in the Northern Mescalero Sandhills are in either high (two units) or moderate (three units) condition. In contrast, both analysis units in the Southern Mescalero Sandhills are in low condition. Two analysis units in the Monahans Sandhills are in low condition and two are moderate condition. Although two analysis units are in high condition according

to our analysis (North Mescalero 2 and 4), there are physically disconnected from any other sand dune formations and contain the least amount of shinnery oak duneland habitat. Thus, despite being relatively undisturbed, they are isolated and small making them at increasing risk of extirpation.

Table 1 Results from the analysis of current status of habitat across the 11 analysis units defined for the dunes sagebrush lizard assessment the overall current condition of those unit.

Representation Unit	Analysis Unit	Proportion of total area minimally disturbed	Proportion of duneland minimally disturbed	Proportion of duneland degraded	Current condition
N Mescalero	N Mescalero 1	0.74	0.80	0.14	Moderate
	N Mescalero 2	0.76	0.93	0.01	High
	N Mescalero 3	0.62	0.65	0.31	Moderate
	N Mescalero 4	0.61	0.58	0.03	High
	N Mescalero 5	0.70	0.71	0.28	Moderate
S Mescalero	S Mescalero 1	0.17	0.17	0.51	Low
	S Mescalero 2	0.40	0.28	0.59	Low
Monahans	Monahans 1	0.36	0.40	0.56	Low
	Monahans 2	0.62	0.73	0.13	Moderate
	Monahans 3	0.66	0.65	0.16	Moderate
	Monahans 4	0.26	0.37	0.51	Low

Using the total size of each analysis unit, we projected the proportion of the total dunes sagebrush lizard range that fell into these different condition categories. Only 6 percent of the species' range is considered to be in high condition, 47 percent is considered to be in moderate condition, and 47 percent is considered to be in low condition. For a more thorough discussion of the current status of the dunes sagebrush lizard, see the SSA report (USFWS 2023, pp. 86–109).

Future Scenarios

To assess the viability of the dunes sagebrush lizard into the future, we developed several scenarios to forecast the condition of the species under different projections of threats. We used our existing assessment of current habitat as the starting point for our future scenarios. We then incorporated projections of factors likely to impact dunes sagebrush lizard viability into the future. Although there are several factors that may influence the condition of the species in the future, we focused on oil and gas development and sand mining as the threats most likely to impact the dunes sagebrush lizard's habitat and long-term viability.

Since dunes sagebrush lizard density and abundance have a negative relationship with oil well pad density, projecting the number and placement of future wells on the landscape is important for assessing the future condition of the species. Pierre et al. (2020, entire) created a spatially explicit model to project future landscape alteration associated with oil and gas development in the Permian Basin. Projections in the model followed three scenarios, which they labelled as “Low”, “Medium”, and “High”, that differed based on numbers of wells developed on each pad. The inputs to the model are based on past, current, and anticipated future production practices that take into account evolving new technology that enables multiple wells to be developed on a single pad, ultimately requiring a smaller footprint per well. All three scenarios were projected to 2050. The models also prevented oil well pads from being established in certain locations, including areas set aside for conservation, such as State parks and Bureau of Land Management lands closed to oil drilling. Because of these features, Pierre et al. (2020, entire) represents a scientifically rigorous projection of future oil and gas development throughout the range of the dunes sagebrush lizard.

The sand mining industry is relatively young in west Texas, with the first mines appearing in 2017. Thus, there are not ample published data on past industry trends that

could be used to project future growth. This raises uncertainty about projecting the growth of existing sand mines and the potential for new mines to be developed. For our future scenarios in the SSA report (USFWS 2023, pp. 111–114), we chose to model future sand mine expansion using our own empirical estimates of sand mine growth rates. We did this by using the latest aerial imagery to estimate growth of individual sand mines within the dunes sagebrush lizard’s range from 2017 to 2022, depending on the availability of imagery. We identified 18 sand mines within our analysis area and assessed their growth rates over the 5-year period using aerial imagery. The median growth rate was 22 ha (54 ac) per mine per year, with the 25th percentile being 16 ha (39 ac) per mine per year and the 75th percentile being 30 ha (74 ac) per mine per year. To capture the ebbs and flows of the market, we created three estimates of sand mine growth rates—a high, medium, and low scenario (USFWS 2023, p. 112–114)—and integrated them into the future scenarios developed by Pierre et al. (2020, entire). For the medium sand mine growth rate scenario, we selected the median growth rate calculated using the aerial imagery. With the high scenario, we selected the 75th percentile of sand mines growth rates, and for the low scenario, we used the 25th percentile of sand mine growth rates. We then used geospatial analyses to project sand mine growth to 2050, which matches the timeframe of the Pierre et al. (2020, entire) scenarios (USFWS 2023, pp. 188–194).

We paired the projections of oil well density and sand mine expansion to capture the extent of potential future impacts to the dunes sagebrush lizard, not to generate a holistic, integrated economic scenario. In other words, we did not assume that the economic forces that would result in an outcome for one industry would necessarily result in a similar trend for the other. Instead, our scenarios were meant to capture the plausible range of landscape impacts caused by both industries under an upper and lower plausible limit. The likely future lies somewhere between these boundary scenarios, and

it is important to interpret them as bounds of plausible future impacts to dunes sagebrush lizard habitat and the species' future viability.

There are several conservation agreements that have been put in place to minimize the impact of industrial activity on the dunes sagebrush lizard and its habitat (see *Conservation Efforts and Regulatory Mechanisms*, below). For projecting future conditions, we considered the nature of the agreements and accounted for them in our projections of future habitat. The protection of public lands in New Mexico was accounted for in the oil projections: Pierre et al. (2020, p. 349, table S3) excluded certain areas from future oil well placement, including protected areas, conservation easements in New Mexico, and Bureau of Land Management lands closed to future oil drilling. In Texas, since most landownership is private and there are fewer protected areas officially closed to future development, there were fewer restrictions on future oil development in the Pierre et al. (2020) model. Furthermore, unlike the conservation agreements in New Mexico, which require avoidance of dunes sagebrush lizard habitat, the agreements in Texas authorize impacts to habitat. The Texas agreements are voluntary agreements where areas set aside to preserve dunes sagebrush lizard habitat by Participants are not under permanent or long-term protection. Further, they do not provide any property-specific commitments to avoid habitat, only commitments to mitigate for habitat impacts that result from covered activities, for the duration of these agreements. Also, since these are private lands, we would not know the location of the habitat being avoided. Thus, based on performance of these plans to date, we do not expect these agreements to have a measurable effect in protecting the dunes sagebrush lizard or its habitat in Texas into the future. Therefore, we did not include potential future conservation efforts resulting from these plans in our scenarios projecting the species' future status. We did not adjust our future projections of oil well density or sand mining to account for these agreements.

We also did not include any future habitat restoration in the future projections.

This is because loss of shinnery oak duneland habitat is irreversible. Trials to restore and recreate shinnery oak dunelands have not been successful (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34). Thus, restoration of dunes sagebrush lizard habitat has been limited and not conducted on a meaningful scale.

In all three scenarios, the quality and quantity of dunes sagebrush lizard habitat was projected to decrease (see figure, below). As with current condition, we ranked the resiliency of the 11 analysis units based on projected habitat conditions under all three scenarios. Across all three scenarios, only 2 percent of the dunes sagebrush lizard's range is projected to have high resiliency in 2050. The low scenario results in similar resiliency scores as estimated for current conditions. In contrast, in the medium scenario, 72 percent of the dunes sagebrush lizard's range is projected to have low resiliency. This increases to 77 percent under the high scenario. With the low scenario, 51 percent of the dunes sagebrush lizard's range is projected to be in moderate resiliency; this drops to 26 and 21 percent for the medium and high scenarios, respectively. Under the medium and high scenarios, all the analysis units in the Southern Mescalero and Monahans analysis units are projected to have low resiliency.

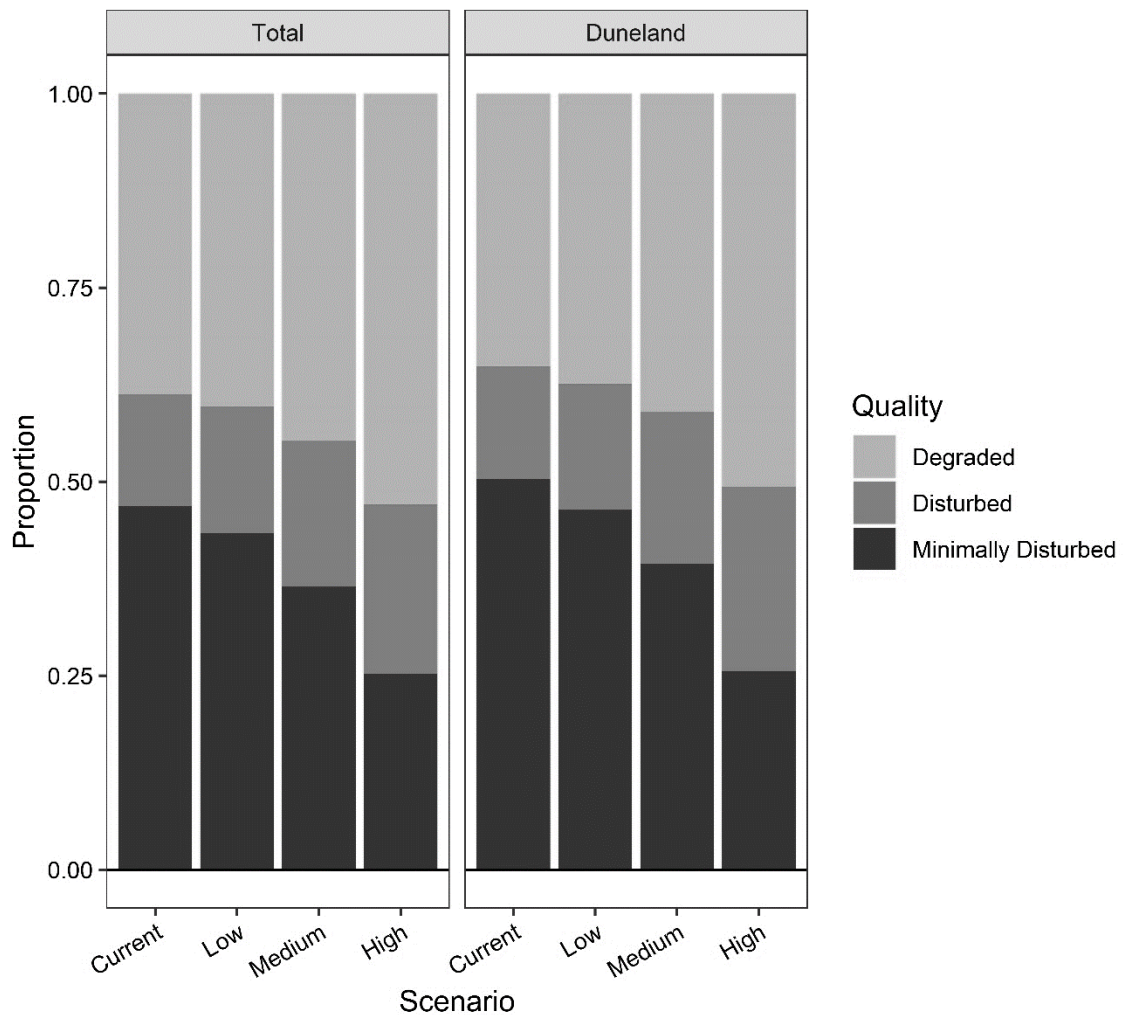


Figure: Comparison of the proportion of total dunes sagebrush lizard habitat (left panel) and shinnery-oak duneland habitat (right panel) currently and projected by 2050 under the three future scenarios. Quality refers to the categories of human disturbance defined in the SSA report. More details on the projections of the future status of the dunes sagebrush lizard can be found in the SSA report (USFWS 2023, pp. 110–129).

Cumulative Effects

We note that by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that

may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of these factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Conservation Efforts and Regulatory Mechanisms

Because we are considering the best available information and because the discussion above primarily addresses the viability of the dunes sagebrush lizard in relation to the threats and factors affecting its viability, here we will discuss regulatory mechanisms and conservation actions that potentially have influenced or will influence the current and future viability of the species.

New Mexico

The dunes sagebrush lizard is listed as an endangered species within the State of New Mexico by the New Mexico Department of Game and Fish and is considered a sensitive species by the Bureau of Land Management. In 2008, the Bureau of Land Management developed a Special Status Species Resource Management Plan Amendment (hereafter Amendment) (BLM 2008, entire) to guide management of lands within dunes sagebrush lizard habitat in New Mexico. The plan addressed concerns and threats of oil and gas development and shinnery oak removal due to herbicide spraying by outlining protective measures and basic guidelines for development in the vicinity of dunes sagebrush lizard habitat. The plan provides for specific conservation requirements, lease stipulations, and the removal of 42,934 ha (106,091 ac) of dunes sagebrush lizard habitat from future oil and gas leasing (BLM 2008, entire). Since the Amendment was approved in 2008, the Bureau of Land Management has closed approximately 120,000 ha (300,000 ac) to future oil and gas leasing and closed approximately 345,000 ha (850,000 ac) to wind and solar development (Bureau of Land Management [BLM] 2008, p. 3). From 2008 to 2020, they have reclaimed 1,416 ha (3,500 ac) of abandoned well pads and

associated roads. Additionally, the Bureau of Land Management continues to implement control efforts for invasive mesquite.

Following approval of the Amendment, a team including the Service, Bureau of Land Management, the Center of Excellence, and participating cooperators drafted both a candidate conservation agreement (CCA) and candidate conservation agreement with assurances (CCAA) (Center of Excellence [CEHMM] 2008, entire) for the dunes sagebrush lizard and lesser prairie-chicken (*Tympanuchus pallidicinctus*) in New Mexico. The CCA addresses the conservation needs of the dunes sagebrush lizard and lesser prairie-chicken on Bureau of Land Management lands in New Mexico by attempting habitat restoration and enhancement activities, conducting activities like removing unused well pads, and minimizing habitat degradation. The CCAA was developed to facilitate conservation actions for the two species on private and State lands.

The CCA and CCAA are umbrella agreements under which individual entities participate. In New Mexico, an estimated 35 percent of the occupied range of the dunes sagebrush lizard is on privately owned and State-managed lands. There are no local or State regulatory mechanisms pertaining to the conservation of dunes sagebrush habitat on private or State lands in New Mexico, nor is there New Mexico State Land Office policy in place to protect sensitive species. The only mechanism for the preservation of dunes sagebrush lizard habitat on lands administered by the New Mexico State Land Office is by having those lands enrolled in the CCAA.

Since the CCA and CCAA were finalized in December 2008, 40 oil and gas companies and 37 ranchers have enrolled a total of 218,144 ha (539,046 ac) of shinnery oak duneland habitat and 258,018 ha (637,577 ac) of the surrounding supportive matrix habitat. The total area of habitat enrolled by industry, private landowners, New Mexico Department of Game and Fish, and New Mexico State Land Office currently covers around 85 percent of the range of the dunes sagebrush lizard within New Mexico. By

enrolling lands in these agreements, participants agree to avoid disturbing shinnery oak duneland habitat, forgo spraying of herbicides on shinnery oak, and relocate projects to avoid dunes sagebrush lizard habitat (CEHMM 2016, pp. 1–2).

Texas

In Texas, the dunes sagebrush lizard is listed as a “species of greatest conservation need” by the Texas Parks and Wildlife Department. This designation does not afford the species any legal protection, but it guides nongame conservation efforts, including regional efforts to conserve these species. Additionally, there are no local or other State mechanisms regulating impacts or pertaining to the conservation of dunes sagebrush lizard habitat on private lands. Nearly all dunes sagebrush lizard habitat in Texas is privately owned. Monahans State Park is the only public land on which the dunes sagebrush lizard is known to exist in Texas.

Texas Conservation Plan—In 2011, the Texas Comptroller of Public Accounts (Comptroller) led a group of stakeholders to develop the Texas Conservation Plan (TCP) for the dunes sagebrush lizard, which finalized a CCAA in 2012. The TCP authorizes impacts to dunes sagebrush lizard habitat (i.e., incidental take of lizards) resulting from oil and gas development, agriculture, and ranching activities (i.e., covered activities) and established a conservation program focused on avoiding these activities in dunes sagebrush lizard habitat. If avoidance of habitat cannot be accomplished, participants enrolled in the TCP must implement conservation measures that minimize and mitigate for habitat impacts via restoration or enhancement of dunes sagebrush lizard habitat (Texas Comptroller of Public Accounts [CPA] 2012, entire).

Approximately 1,847 ha (4,564 ac) of dunes sagebrush lizard habitat was negatively impacted by the TCP between 2012 and 2018. However, after 6 years of implementation, the Comptroller sought to revise the TCP to address issues preventing the plan from achieving its conservation and protection goals (Gulley 2017a, entire;

Gulley 2017b, entire; Koch 2018, entire; Hegar 2018a, entire; Hegar 2018b, entire; Gulley 2018a, entire; Gulley 2018b, entire; Hegar 2018d, entire; CPA 2019, entire). In 2018, the Comptroller submitted these proposed revisions to the Service in the form of a new CCAA to replace the existing TCP and subsequently ended their administration of the permit (Ashley 2018a, entire; Ashley 2018b, entire; Hegar 2018a, entire; Hegar 2018b, entire; Hegar 2018c, entire). The Service did not approve the proposed new CCAA submitted by the Comptroller. Rather, in 2020, the Service revised and transferred the permit for the TCP to a new permit holder, the American Conservation Foundation (Falen 2019, entire; Fleming 2020a, entire; Fleming 2020b, entire). Of the 29 Participants enrolled in the 2012 TCP, only 8 expressed interest in maintaining enrollment under the revised 2020 TCP. Subsequently, the area enrolled in the TCP decreased significantly, from 120,193 ha (297,004 ac) in 2012, to 28,489 ha (70,397 ac) in 2020 (approximately 76 percent decrease). The Service remains in discussions with the American Conservation Foundation and remaining Participants to consider and implement changes to the TCP.

2020 CCAA—In 2020, a separate applicant, led primarily by mining companies, applied for a separate CCAA that covers oil and gas, sand mining, linear infrastructure (such as utilities and pipelines), wind, solar, local governments, and agriculture and ranching (Canyon Environmental, LLC 2020, entire). The Service approved this CCAA in 2021. Using habitat as a surrogate for quantifying the amount of incidental take, the total amount of take authorized during the permit term (23 years) is 14,140 ha (34,940 ac). Because it was not possible to determine how much dunes sagebrush lizard habitat would be disturbed or destroyed by Participants versus non-Participants, this estimate, which was formulated based on a variety of factors (Canyon Environmental, LLC 2020, pp. 45–49), is the expected total impacts to habitat in Texas over the permit term, including from the TCP.

The 2020 CCAA describes the goal and objectives of the CCAA conservation strategy. The one overarching goal is to contribute, directly or indirectly, to the conservation of the dunes sagebrush lizard by reducing or eliminating threats on enrolled properties. This goal is then followed by a list of objectives that emphasize, in part, conserving dunes sagebrush lizard habitat, restoring and reclaiming impacted areas, reducing habitat fragmentation, and addressing surface impacts from the development of stratified mineral estates. Each industry has various avoidance and minimization measures that they are encouraged to implement. Each industry also has various fees based on dunes sagebrush lizard habitat type to be impacted. These fees are expected to support administration of the 2020 CCAA, as well as conservation actions and research.

The permit was issued on January 20, 2021, and the permit administrator is currently coordinating implementation with the Service and actively seeking participants to sign up under the 2020 CCAA. To date, no certificates of inclusion have been issued, and thus no conservation actions have been implemented as part of this CCAA.

Determination of Dunes Sagebrush Lizard's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an “endangered species” as a species in danger of extinction throughout all or a significant portion of its range, and a “threatened species” as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an endangered species or a threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other

natural or manmade factors affecting its continued existence. We also take into consideration any efforts by States or other authorities to protect the species and promote its viability.

Status Throughout All of Its Range

Among the threats we evaluated in our SSA report (USFWS 2023, entire), the most consequential to the long-term persistence of the dunes sagebrush lizard are habitat loss, modification, and fragmentation due to the industrial extraction of oil, gas, and frac sand (Factor A). Because these activities have so thoroughly degraded habitat across large portions (47 percent) of shinnery oak duneland habitat, much of it is no longer capable of supporting populations of the dunes sagebrush lizard. Even though these degraded areas may continue to support the dunes sagebrush lizard in small, isolated patches, the species in these areas has limited recruitment, has higher mortality, and is disconnected from other populations. In highly degraded areas, remnant populations may persist over the next several decades, but as they become extirpated there is little potential for recolonization due to habitat fragmentation. Therefore, the dunes sagebrush lizard is functionally extinct across 47 percent of its range. This includes the entire Southern Mescalero Sandhills portion of the range, which reduces the species' adaptive capacity and, therefore, reduces its representation.

Based on our habitat assessment, only two analysis units (6 percent) are currently in high enough condition to support robust, interconnected populations. Even this, however, may be an over-estimate of long-term resiliency, since these two analysis units are at the extreme northern portion of the species' range in New Mexico and are physically disconnected from other dune fields and each other. Additionally, although minimally disturbed, these two units contain the least amount of shinnery oak duneland habitat; thus, the populations within these units are small, isolated, and vulnerable to stochastic and catastrophic events.

Another large component of the species' range (47 percent) is currently in moderate condition, meaning it contains sufficient amounts of minimally disturbed habitat to support populations of the dunes sagebrush lizard at this time. However, within these areas, interconnectedness is reduced, increasing the potential for local extirpations. Dunes sagebrush lizard populations where the habitat is in moderate condition are not secure in those units, as the populations are already highly fragmented and are expected to continue to be impacted by human activity. Even if there was no further expansion of the oil and gas or sand mining industries, the existing footprint of these operations will continue to negatively affect the dunes sagebrush lizard into the future. For example, the existing road network will continue to restrict movement and facilitate direct mortality of dunes sagebrush lizards from traffic, and industrial development will continue to have edge effects on surrounding habitat and weaken the structure of the sand dune formations. The pervasiveness of industrial development makes dunes sagebrush lizards vulnerable to other threats that were not explicitly quantified in our assessment, such as extreme drought, groundwater extraction, oil spills, and mesquite encroachment. Because shinnery-oak duneland habitat cannot currently be restored (Ryberg et al. 2015, p. 896; Johnson et al. 2016, p. 34), and limited existing infrastructure will likely be removed from this landscape, there is little possibility for conditions in these moderate condition units to improve (USFWS 2023, pp. 105-107). Therefore, we conclude that habitat in these units will continue to deteriorate due to fragmentation, which will continue to isolate populations and result in a progressive decline in population abundance. Ultimately, the species will become extirpated in the areas currently classified as moderate condition, even without any expansion of current threats.

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that the risk factors acting on the dunes sagebrush lizard and its habitat, either singly or in combination, are of

sufficient imminence, intensity, and magnitude to indicate that the species is in danger of extinction throughout all of its range. Due to current stressors, the species has experienced reductions in resiliency across its range, making it vulnerable to stochastic events. Although it still occupies much of its range, many populations are small, isolated, and vulnerable to extirpation, which will gradually erode redundancy and increase the risks posed by catastrophic events, such as drought. An entire lineage covering an ecologically separate portion of the range (Southern Mescalero) is functionally extinct, which would reduce adaptive capacity and the ability of the species to respond to environmental change. A second lineage occupying a geographically disjunct portion of the range (Monahans) is on a similar trajectory. Thus, after assessing the best available information, we determine that the dunes sagebrush lizard is in danger of extinction throughout all of its range. Threats are so pervasive and severe across the species range that they heighten the risk of extinction for the dunes sagebrush lizard in the near future even with extrapolation of these threats into the future, meaning a threatened determination under the Act would not reflect the current risk to the species.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. We have determined that the dunes sagebrush lizard is in danger of extinction throughout all of its range and accordingly did not undertake an analysis of any significant portion of its range. Because the dunes sagebrush lizard warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), which vacated the provision of the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (79 FR 37578; July

1, 2014) providing that if the Services determine that a species is threatened throughout all of its range, the Services will not analyze whether the species is endangered in a significant portion of its range.

Determination of Status

Our review of the best available scientific and commercial information indicates that the dunes sagebrush lizard meets the Act's definition of an endangered species. Therefore, we propose to list the dunes sagebrush lizard as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies, including the Service, and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened ("downlisting") or removal from protected status ("delisting"), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (<https://www.fws.gov/program/endangered-species>), or from our New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of New Mexico and Texas would be eligible for Federal funds to implement management actions that promote the protection or recovery of the dunes sagebrush lizard. Information on our grant programs that are available to aid species recovery can be found at:

<https://www.fws.gov/service/financial-assistance>.

Although the dunes sagebrush lizard is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with the Service.

Examples of actions that may be subject to the section 7 processes are land management or other landscape-altering activities on Federal lands or mineral rights administered by the Bureau of Land Management as well as actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 et seq.) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, Federal Emergency Management Agency, or Natural Resources Conservation Service). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation. Examples of Federal agency actions that may require consultation for the dunes sagebrush lizard could include updates or amendments to the Bureau of Land Management Resource Management Plan; oil and gas lease sales of Federal lands or minerals; habitat management, such as mesquite treatments and prescribed burns, on Bureau of Land Management lands; and new roads funded by the Federal Highway Administration. Given the difference in triggers for conferencing and consultation, Federal agencies should coordinate with the local Service Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) endangered wildlife within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course

of commercial activity; or sell or offer for sale in interstate or foreign commerce any species listed as an endangered species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is our policy, as published in the *Federal Register* on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing.

At this time, however, we are unable to identify specific activities that would not be considered to result in a violation of section 9 of the Act because the dunes sagebrush lizard and its habitat occurs in a highly active and developing region of New Mexico and Texas and it is likely that site-specific conservation measures may be needed for activities that may directly or indirectly affect the species.

Based on the best available information, the following activities may potentially result in a violation of section 9 of the Act if they are not authorized in accordance with applicable law; this list is not comprehensive:

(1) Destruction, alteration, or removal of shinnery oak duneland and shrubland vegetation.

(2) Degradation, removal, or fragmentation of shinnery oak duneland and shrubland formations and ecosystems.

(3) Disruption of water tables in dunes sagebrush lizard habitat.

(4) Introduction of nonnative species that compete with or prey upon the dunes sagebrush lizard.

(5) Unauthorized release of biological control agents that attack any life stage of the dunes sagebrush lizard or that degrade or alter its habitat.

(6) Herbicide or pesticide applications in shinnery oak duneland and shrubland vegetation and ecosystems.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

II. Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (i.e., range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation also does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would likely result in destruction or adverse modification of the critical habitat,

the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement “reasonable and prudent alternatives” to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act’s definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

Under the second prong of the Act’s definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the *Federal Register* on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information from the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; the recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; other unpublished materials; or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of the species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

(i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

(iv) No areas meet the definition of critical habitat; or

(v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

As discussed earlier in this document, there is currently no imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report and proposed listing determination for the dunes sagebrush lizard, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the dunes sagebrush lizard and that threat in some way can be addressed by the Act's section 7(a)(2) consultation measures. The species occurs wholly in the jurisdiction

of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because the Secretary has not identified other circumstances for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the dunes sagebrush lizard.

Critical Habitat Determinability

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the dunes sagebrush lizard is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

- (i) Data sufficient to perform required analyses are lacking; or

- (ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of “critical habitat.”

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where this species is located. Careful assessments of the economic and environmental impacts that may occur due to a critical habitat designation are not yet complete, and we are in the process of working with the States and other partners in acquiring the complex information needed to perform those assessments. The information sufficient to perform a required analysis of the impacts of the designation is lacking. Therefore, we conclude that the designation of critical habitat for the dunes sagebrush lizard is not determinable at this time. The Act allows the Service an additional year to publish a critical habitat designation that is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

Required Determinations

Clarity of the Rule

We are required by E.O.s 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), E.O. 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to

Indian culture, and to make information available to Tribes. No designated Tribal lands occur within the range of the dunes sagebrush lizard, but several Tribes may have interests in this area and could be affected by the proposed rule. We contacted the Mescalero Apache, Pueblo of Tesuque, Ysleta del Sur Pueblo, Kiowa Tribe of Oklahoma, Apache Tribe of Oklahoma, and Comanche Nation of Oklahoma regarding the SSA process by mail and invited them to provide information and comments to inform the SSA. Our interactions with these Tribes are part of our government-to-government consultation with Tribes regarding the dunes sagebrush lizard and the Act. We will continue to work with Tribal entities during the rulemaking process.

References Cited

A complete list of references cited in this rulemaking is available on the internet at <https://www.regulations.gov> and upon request from the New Mexico Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and the New Mexico Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

AUTHORITY: 16 U.S.C. 1361-1407; 1531-1544; and 4201-4245, unless otherwise noted.

2. Amend § 17.11(h) by adding an entry for “Lizard, dunes sagebrush” to the List of Endangered and Threatened Wildlife in alphabetical order under REPTILES to read as follows:

§ 17.11 Endangered and threatened wildlife.

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(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* * * * *	* * *			
REPTILES				
* * * * *	* * *			
Lizard, dunes sagebrush	<i>Sceloporus arenicolus</i>	Wherever found	E	[<i>Federal Register</i> citation when published as a final rule].
* * * * *	* * *			

Martha Williams,

Director,

U.S. Fish and Wildlife Service.